

IN THE CLAIMS:

The text of all pending claims (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. When strikethrough cannot easily be perceived, or when five or fewer characters are deleted, [[double brackets]] are used to show the deletion. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (CURRENTLY AMENDED) An internal unit incorporated in a body of a submarine apparatus, the unit comprising:

a plurality of system units placed in a predetermined arrangement, the system units including at least one electronic-circuit printed board having a part to be adjusted; and

coupling bars coupling cover members which cover the plurality of system units, ~~and~~ said coupling bars fixed to coupling-bar fixing surfaces of said system units by screws so as to couple said system units in said predetermined arrangement,

wherein said coupling-bar fixing surfaces are located at positions shifted from said electronic-circuit printed board.

2. (CURRENTLY AMENDED) An internal unit incorporated in a body of a submarine apparatus, the unit comprising:

a plurality of system units placed in a predetermined arrangement, the system units including an optical-fiber containing portion containing an optical fiber, an electric-supply-line containing portion containing an electric-supply line, and at least one electronic-circuit printed board having a part to be adjusted; and

coupling bars coupling cover members which cover the plurality of system units, ~~and~~ said coupling bars fixed to coupling-bar fixing surfaces of said system units by screws so as to couple said system units in said predetermined arrangement,

wherein said coupling-bar fixing surfaces are located at positions shifted from said optical-fiber containing portion, said electric-supply-line containing portion, and said electronic-circuit printed board.

3. (ORIGINAL) The internal unit as claimed in claim 1, wherein each of said system units has inclined surfaces on both sides thereof; and
said inclined surfaces form said coupling-bar fixing surfaces.

4. (ORIGINAL) The internal unit as claimed in claim 2, wherein each of said system units has inclined surfaces on both sides thereof; and
said inclined surfaces form said coupling-bar fixing surfaces.

5. (ORIGINAL) The internal unit as claimed in claim 1, further comprising a plurality of covers fixed to said coupling bars by screws so that each of said covers lies across the coupling bars adjacent in a circumferential direction,
wherein the covers adjacent in the circumferential direction are placed so as to form a gap therebetween, the gap being located at a position opposing each of said screws fixing said coupling bars.

6. (ORIGINAL) The internal unit as claimed in claim 2, further comprising a plurality of covers fixed to said coupling bars by screws so that each of said covers lies across the coupling bars adjacent in a circumferential direction,
wherein the covers adjacent in the circumferential direction are placed so as to form a gap therebetween, the gap being located at a position opposing each of said screws fixing said coupling bars.

7. (ORIGINAL) The internal unit as claimed in claim 1, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

8. (ORIGINAL) The internal unit as claimed in claim 2, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

9. (ORIGINAL) The internal unit as claimed in claim 3, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

10. (ORIGINAL) The internal unit as claimed in claim 4, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

11. (ORIGINAL) The internal unit as claimed in claim 5, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

12. (ORIGINAL) The internal unit as claimed in claim 6, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

13. (ORIGINAL) The internal unit as claimed in claim 1, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

14. (ORIGINAL) The internal unit as claimed in claim 2, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

15. (ORIGINAL) The internal unit as claimed in claim 3, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

16. (ORIGINAL) The internal unit as claimed in claim 4, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

17. (ORIGINAL) The internal unit as claimed in claim 5, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

18. (ORIGINAL) The internal unit as claimed in claim 6, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

19. (CURRENTLY AMENDED) A submarine apparatus comprising:
a cylindrical airtight body; and
an internal unit incorporated in said body, the internal unit including:
a plurality of system units placed in a predetermined arrangement, the system units including at least one electronic-circuit printed board having a part to be adjusted; and
coupling bars coupling cover members which cover the plurality of system units, and said coupling bars fixed to coupling-bar fixing surfaces of said system units by screws so as to couple said system units in said predetermined arrangement,
wherein said coupling-bar fixing surfaces are located at positions shifted from said electronic-circuit printed board.

20. (CURRENTLY AMENDED) A submarine apparatus comprising:
a cylindrical airtight body; and

an internal unit incorporated in said body, the internal unit including:

a plurality of system units placed in a predetermined arrangement, the system units including an optical-fiber containing portion containing an optical fiber, an electric-supply-line containing portion containing an electric-supply line, and at least one electronic-circuit printed board having a part to be adjusted; and

coupling bars coupling cover members which cover the plurality of system units, ~~and~~said coupling bars fixed to coupling-bar fixing surfaces of said system units by screws so as to couple said system units in said predetermined arrangement,

wherein said coupling-bar fixing surfaces are located at positions shifted from said optical-fiber containing portion, said electric-supply-line containing portion, and said electronic-circuit printed board.

21. (ORIGINAL) The submarine apparatus as claimed in claim 19, wherein each of said system units has inclined surfaces on both sides thereof; and

said inclined surfaces form said coupling-bar fixing surfaces.

22. (ORIGINAL) The submarine apparatus as claimed in claim 20, wherein each of said system units has inclined surfaces on both sides thereof; and

said inclined surfaces form said coupling-bar fixing surfaces.

23. (ORIGINAL) The submarine apparatus as claimed in claim 19, further comprising a plurality of covers fixed to said coupling bars by screws so that each of said covers lies across the coupling bars adjacent in a circumferential direction,

wherein the covers adjacent in the circumferential direction are placed so as to form a gap therebetween, the gap being located at a position opposing each of said screws fixing said coupling bars.

24. (ORIGINAL) The submarine apparatus as claimed in claim 20, further comprising a plurality of covers fixed to said coupling bars by screws so that each of said covers lies across the coupling bars adjacent in a circumferential direction,

wherein the covers adjacent in the circumferential direction are placed so as to form a gap therebetween, the gap being located at a position opposing each of said screws fixing said coupling bars.

25. (ORIGINAL) The submarine apparatus as claimed in claim 19, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

26. (ORIGINAL) The submarine apparatus as claimed in claim 20, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

27. (ORIGINAL) The submarine apparatus as claimed in claim 21, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

28. (ORIGINAL) The submarine apparatus as claimed in claim 22, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

29. (ORIGINAL) The submarine apparatus as claimed in claim 23, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

30. (ORIGINAL) The submarine apparatus as claimed in claim 24, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other, and

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof.

31. (ORIGINAL) The submarine apparatus as claimed in claim 19, wherein each of said system units comprises an optical circuit unit including an optical circuit unit including an

optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

32. (ORIGINAL) The submarine apparatus as claimed in claim 20, wherein each of said system units comprises an optical circuit unit including an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

33. (ORIGINAL) The submarine apparatus as claimed in claim 21, wherein each of said system units comprises an optical circuit unit including an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

34. (ORIGINAL) The submarine apparatus as claimed in claim 22, wherein each of said system units comprises an optical circuit unit including an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

35. (ORIGINAL) The submarine apparatus as claimed in claim 23, wherein each of said system units comprises an optical circuit unit including an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

36. (ORIGINAL) The submarine apparatus as claimed in claim 24, wherein each of said system units comprises an optical circuit unit including an optical circuit component module, a power-supply circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit including a power-supply module, and a control circuit unit, the optical circuit unit, the power-supply circuit unit and the control circuit unit being stacked on each other,

said control circuit unit includes a printed board used for adjusting and address-setting mounted on an outer surface thereof, and

said control circuit unit has a trapezoidal shape when viewed in a longitudinal direction so as to form said coupling-bar fixing surfaces on both sides thereof, the coupling-bar fixing surfaces being inclined in a form of a roof.

37. (PREVIOUSLY PRESENTED) A method comprising:

assembling and adjusting a plurality of system units in a predetermined arrangement of a submarine apparatus for amplifying optical signals;

fixing a first and a second coupling bar to a first and a second coupling-bar fixing surface of the plurality of system units, respectively;

fixing a third and a fourth coupling bar to a third and a fourth coupling-bar fixing surface of the plurality of system units, respectively, thereby forming an internal unit of the submarine apparatus;

adjusting properties and settings of the plurality of system units;

coupling cover members to the internal unit through the coupling bars forming a covered internal unit; and

inserting the covered internal unit into an insulating cylinder.

38. (PREVIOUSLY PRESENTED) The method according to claim 37, wherein the insulating cylinder comprises a cylindrical airtight body.

39. (PREVIOUSLY PRESENTED) The method according to claim 37, wherein the system units include an optical-fiber containing portion containing an optical fiber, an electric-supply-line containing portion containing an electric-supply line, and at least one adjustable electronic-circuit printed board.

40. (PREVIOUSLY PRESENTED) The method according to claim 39, wherein the coupling-bar fixing surfaces are located at positions shifted from the optical fiber containing portion, the electric-supply-line containing portion, and the electronic-circuit printed board.